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MEMORANDUM FOR: [REDACTED] USAF (Ret.)

SUBJECT: Medical Report on Extended Flights

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1. The attached report was prepared by [REDACTED] Flight Surgeon of the Edwards Air Force Base Detachment. Two inflight refueling (IFR) extended sorties were recently completed by the Edwards Detachment and the paper reflects [REDACTED] observations of the pilots' reactions, etc.

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2. In view of your current studies of the pilot fatigue problem the paper is forwarded for your evaluation. It appears that the relationship of inflight liquid consumption and pilots' reactions to the effects of the long mission may be significant. Your evaluation will perhaps suggest that this and/or other factors bearing on pilot fatigue are evident.

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STANLEY W. BEERLI
Colonel USAF
for Acting Chief, DPD-DD/P

Attachment - 1
As noted above

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DPD/SPB/[REDACTED]:ph (27 Oct 61)

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SUBJECT: Some Medical Aspects of Extended IFR Flights

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1. Two flights of extended duration which involved IFR have been flown. [] flew for 12+20 hours on 28 September 1961, and [] flew for 12+00 hours on 29 September 1961.

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2. Special medical interest was taken to evaluate the fatigue and physiologic factors involved in these flights. Each pilot was counselled prior to flight by the Squadron Surgeon to reemphasize the importance of adequate crew rest, proper preflight and inflight diet, and the symptoms of severe fatigue or other medical problems that would indicate reason for aborting the flight short of its scheduled duration.

3. Preflight examination and interrogation was accomplished, and vital signs and weight were recorded. In both cases, preflight factors appeared to be optimal, except for the fact that both pilots, by necessity, arose from sleep approximately three and one-half hours prior to take-off.

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4. Both flights were consummated without incident, and without abnormal workloads. Inflight feeding was variable according to each pilot's previous indoctrination and personal preference. Both consumed the same amount of food. [] drank no water, and [] drank four bottles of water and would have drunk more if available; with time, this will become a simple matter to anticipate and plan for. Weight loss during flight was negligible, indicating the adequacy of the dietary program which was followed.

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5. Post-flight examination on [] revealed no discrepancies or abnormalities, and little, if any, differences between this 12 hour flight and one of 10 hours.

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6. [] experienced mild dizziness shortly after egress from the cockpit, which persisted for about one hour. During this time, [] pulse rate was fast, but his blood pressure remained normal. It is believed that the phenomenon observed in [] was due to his vascular constitution coupled with his rapid change in body position, both of which may have been adversely influenced to a small degree by the cigarettes he smoked and small amount of alcoholic beverage he drank after egress from the cockpit. It is not believed that the phenomenon observed in [] would occur inflight and become a contraindication to his flying this kind of mission, although close monitoring will be continued.

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7. Neither pilot related particular anxiety about refueling after four hours in flight. Neither could suggest additional comfort factors, that are not already being investigated, nor could relate irritative factors that might be eliminated on future flights.

8. Personal equipment factors functioned optimally. There was a difference of opinion about the efficiency of the pneumatic seat cushion which was provided for pilot comfort. A better type of seat cushion is under consideration.

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9. The respective oxygen consumption curves were predictable; [] was below, but parallel, to the curve and he consumed a total of 1470 psi of oxygen; [] was consistently gaining above the curve and he consumed 1000 psi of oxygen.

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10. In summary, and on the basis of this very limited experience, it would appear that there are no insurmountable medical or psychological problems to conducting IFR flights of approximately 12 hours durations. It must be constantly born in mind that the physiologic manifestations of fatigue, especially the more dangerous ones, such as impaired judgment and relative indifference, are frequently subtle and insidious and may give pilots, as well as others, a false sense of security. At best, this can be counteracted only by an awareness that a potentially dangerous state exists at the end of any flight of extended duration.

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[]
Captain, USAF
Squadron Surgeon

COPY 27 October 1961

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